

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A flip-chip BGA semiconductor device in which a semiconductor chip is mounted on a substrate by a reflow process;
comprising a stiffener that is bonded by means of adhesive to ~~the~~ an area surrounding said semiconductor chip on ~~the~~ a surface of said substrate on which said semiconductor chip is mounted;

wherein gaps are provided between said stiffener and said substrate that each extend outwardly from positions that confront ~~opposite~~ two sides of said semiconductor chip and that communicate with ~~the~~ ends of said substrate.

2. (Currently Amended) A flip-chip BGA semiconductor device according to claim 1, wherein ~~one~~ a first gap of said gaps ~~on two sides of said semiconductor chip~~ is provided across ~~the~~ a width of ~~the~~ a first side of said two sides of said semiconductor chip that said ~~one~~ first gap confronts.

3. (Currently Amended) A flip-chip BGA semiconductor device according to claim 1, wherein ~~both~~ a first gap and a second gap of said gaps ~~on two sides of said semiconductor chip~~ are provided across ~~the~~ widths of the two sides of said semiconductor chip that said gaps confront.

4. (Currently Amended) A flip-chip BGA semiconductor device according to claim 1, wherein said gaps are formed by depressions ~~that are provided~~ in the surface of said substrate on which said semiconductor chip is mounted.

5. (Currently Amended) A flip-chip BGA semiconductor device according to claim 1, wherein said gaps are formed by depressions ~~that are formed in the~~ a surface of said stiffener that faces said substrate by making portions of ~~the area of~~ said stiffener thinner than other areas.

6. (Original) A flip-chip BGA semiconductor device according to claim 5, wherein said adhesive is not provided in portions in which said depressions are formed.

7. (New) A semiconductor device, comprising:
a substrate;
a semiconductor chip mounted on a first surface of the substrate by a reflow process;
a stiffener connected to the first surface of the substrate and laterally surrounding the semiconductor chip;
a first gap between the stiffener and the substrate extending from a first position adjacent to a first side of the semiconductor chip to a first lateral side of the substrate.

8. (New) The semiconductor device of claim 7, further comprising a second gap between the stiffener and the substrate extending from a second position adjacent to a second side of the semiconductor chip to a second lateral side of the substrate.

9. (New) The semiconductor device of claim 8, wherein the first and second sides of the semiconductor chip are opposite sides.

10. (New) The semiconductor device of claim 7, wherein the first gap comprises a first depression formed in the first surface of the substrate.

11. (New) The semiconductor device of claim 7, wherein the first depression extends closer to the semiconductor chip than a portion of the stiffener arranged above the first depression.

12. (New) The semiconductor device of claim 7, wherein an adhesive connects the stiffener and the first surface of the substrate.

13. (New) The semiconductor device of claim 7, wherein the first gap comprises a first depression formed in a first surface of the stiffener facing the first surface of the substrate.

14. (New) The semiconductor device of claim 13, wherein an adhesive connects the stiffener and the first surface of the substrate, except that no adhesive is provided between the first depression in the first surface of the stiffener and the first surface of the substrate.

15. (New) The semiconductor device of claim 7, wherein a width of the first gap, measured in a direction perpendicular to its direction of extension, is equal to a width of the first side of the semiconductor chip.

16. (New) The semiconductor device of claim 7, wherein the semiconductor device is a flip chip BGA semiconductor device.

Amendment Under 37 C.F.R. § 1.111
U.S. Appl. No.: 10/659,379

Attorney Docket # Q77402

AMENDMENTS TO THE DRAWINGS

Replacement Figures 4 and 6 are attached hereto.

Attachment: Replacement Sheet